

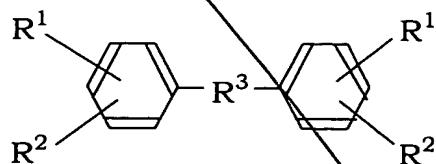
CLAIMS

1. A fluorine-containing rubber composition for crosslinking which comprises a fluorine-containing elastomer having carboxyl group and/or alkoxy carbonyl group at an end of a trunk chain and/or branched chain as a crosslinkable group.

2. The fluorine-containing rubber composition for crosslinking of Claim 1, which comprises a fluorine-containing elastomer having carboxyl group at an end of a trunk chain and/or branched chain as a crosslinkable group.

*Sub C2* 3. The fluorine-containing rubber composition for crosslinking of Claim 2, which comprises a fluorine-containing elastomer having carboxyl group at an end of a trunk chain as a crosslinkable group.

*Sub A* > 4. The fluorine-containing rubber composition for crosslinking which comprises 100 parts of the fluorine-containing elastomer of any of Claims 1 to 3 and 0.5 to 5.0 parts by weight of a crosslinking agent represented by the formula (III):



wherein one of R<sup>1</sup> and R<sup>2</sup> is -NH<sub>2</sub> and another one is -NH<sub>2</sub>, -OH or -SH,

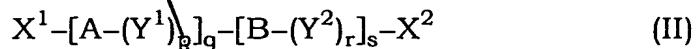
$R^3$  is  $-SO_2-$ ,  $-O-$ ,  $-CO-$ , an alkylene group having 1 to 6 carbon atoms, a perfluoroalkylene group having 1 to 10 carbon atoms or a single bond.

5. The fluorine-containing rubber composition for  
5 crosslinking of Claim 4, wherein a bisaminophenyl crosslinking agent of  
the formula (III), in which each of  $R^1$  and  $R^2$  is  $-NH_2$ , is used.

10 6. The fluorine-containing rubber composition for  
crosslinking of Claim 1, wherein the fluorine-containing elastomer has  
carboxyl group and/or alkoxy carbonyl group at an end of a trunk chain  
and/or branched chain as a crosslinkable group and is represented by  
the formula (I):



or the formula (II):



20 25 wherein  $X^1$  and  $X^2$  are the same or different and each is carboxyl group, alkoxy carbonyl group, iodine atom, bromine atom or sulfonic acid group,  $Y$ ,  $Y^1$  and  $Y^2$  are the same or different and each is a divalent organic group having carboxyl group, alkoxy carbonyl group, iodine atom, bromine atom or nitrile group at a side chain thereof,  $A$  is an elastomeric fluorine-containing polymer chain segment,  $B$  is a non-elastomeric fluorine-containing polymer chain segment,  $p$  is 0 or an integer of 1 to 10,  $q$  is an integer of 1 to 5,  $r$  is 0 or an integer of 1 to 10,  $s$  is an integer of 1

*Subj. conc.* to 3, any one of  $X^1$ ,  $X^2$ ,  $Y$ ,  $Y^1$  and  $Y^2$  is carboxyl group or alkoxy carbonyl group,  $Y$ ,  $Y^1$  and  $Y^2$  may be contained at random in the segment A or B.

7. The fluorine-containing rubber composition for crosslinking of Claim 6, wherein the elastomeric fluorine-containing polymer chain segment comprises not less than 90 % by mole of perhalo olefin unit as a component unit.

*Subj. A<sub>2</sub> >* 8. A process for preparing the fluorine-containing elastomer of Claim 1 or 2, which comprises polymerizing a fluorine-containing monomer by using, as one of a polymerization initiator and/or monomer, a compound giving carboxyl group and/or alkoxy carbonyl group to a trunk chain and/or branched chain and treating a polymerization product with an acid.

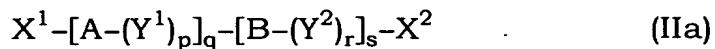
15 9. The preparation process of Claim 8, wherein the polymerization of fluorine-containing monomer is carried out by emulsion polymerization method.

20 *Subj. C* 10. A fluorine-containing elastomer which has carboxyl group at an end of a trunk chain as a crosslinkable group and is represented by the formula (Ia):



25

or the formula (IIa):



wherein  $X^1$  and  $X^2$  are the same or different and each is carboxyl group, alkoxy carbonyl group, iodine atom, bromine atom or sulfonic acid group, 5  $Y$ ,  $Y^1$  and  $Y^2$  are the same or different and each is a divalent organic group having carboxyl group, alkoxy carbonyl group, iodine atom, bromine atom or nitrile group at a side chain thereof,  $A$  is an elastomeric fluorine-containing polymer chain segment,  $B$  is a non-elastomeric fluorine-containing polymer chain segment,  $p$  is 0 or an integer of 1 to 10,  $q$  is an integer of 1 to 5,  $r$  is 0 or an integer of 1 to 10,  $s$  is an integer of 1 10 to 3, any one of  $X^1$  and  $X^2$  is carboxyl group,  $Y$ ,  $Y^1$  and  $Y^2$  may be contained at random in the segment  $A$  or  $B$ .

11. The fluorine-containing elastomer of Claim 10, wherein the elastomeric fluorine-containing polymer chain segment comprises 15 not less than 90 % by mole of perhalo olefin unit as a component unit.

~~Sub A<sub>3</sub>~~

12. The fluorine-containing elastomer of Claim 10 or 11, which satisfies the following equation (1):

$$20 \quad (\text{Sco}/\text{Scf}) \times (D/D_p) \times (F/F_p) \geq 0.01 \quad (1)$$

wherein  $\text{Sco}$ ,  $\text{Scf}$ ,  $D$ ,  $D_p$ ,  $F$  and  $F_p$  represent the following respective values.

25  $\text{Sco}$ : Total area of absorbances at the absorptions derived from carbonyl group of associated and non-associated carboxyl groups having the absorption peaks at from 1,680 to 1,830  $\text{cm}^{-1}$  when measurement is made with FT-IR with respect to the elastomer to be measured.

Scf: Area of absorbance at absorption derived from a harmonic sound of C-F bond having an absorption peak at from 2,220 to 2,840  $\text{cm}^{-1}$  when measurement is made with FT-IR with respect to the elastomer to be measured. In case where nitrile group is present, Scf is a value obtained by subtracting an area of absorbance at absorption derived from nitrile group having an absorption peak at from 2,220 to 2,300  $\text{cm}^{-1}$  from a total area of absorbances at whole absorption having a peak at from 2,220 to 2,840  $\text{cm}^{-1}$ .

D: Specific gravity of the aimed elastomer at 20°C.

10 Dp: Specific gravity (measured value: 2.03) at 20°C of a standard perfluoro elastomer (copolymer of tetrafluoroethylene/perfluoro(methyl vinyl ether) in a mole ratio of 58/42).

F: Fluorine content (% by weight) of the elastomer to be measured obtained by elemental analysis.

15 Fp: Fluorine content (measured value: 71.6 % by weight) of said standard perfluoro elastomer obtained by elemental analysis.

13. A crosslinked fluorine-containing rubber molded article obtained by crosslinking the fluorine-containing rubber composition for 20 crosslinking of any of Claims 1 to 7.

*App A4*